

amusement. We don't like to be played with. And when we say, "This isn't a game!", what we mean is that someone is behaving recklessly or not taking a situation seriously. This admonishment implies that games encourage and train people to act in ways that aren't appropriate for real life.

When you start to pay attention, you realize how collectively suspicious we are of games. Just by looking at the language we use, you can see we're wary of how games encourage us to act and who we are liable to become if we play them.

But these metaphors don't accurately reflect what it really means to play a well-designed game. They're just a reflection of our worst fears about games. And it turns out that what we're really afraid of isn't games; we're afraid of losing track of where the game ends and where reality begins.

If we're going to fix reality with games, we have to overcome this fear. We need to focus on how real games actually work, and how we act and interact when we're playing the same game *together*.

Let's start with a really good definition of *game*.

The Four Defining Traits of a Game

Games today come in more forms, platforms, and genres than at any other time in human history.

We have single-player, multiplayer, and massively multiplayer games. We have games you can play on your personal computer, your console, your handheld device, and your mobile phone—not to mention the games we still play on fields or on courts, with cards or on boards.

We can choose from among five-second minigames, ten-minute casual games, eight-hour action games, and role-playing games that go on endlessly twenty-four hours a day, three hundred sixty-five days a year. We can play story-based games, and games with no story. We can play games with and without scores. We can play games that challenge mostly our brains or mostly our bodies—and infinitely various combinations of the two.

And yet somehow, even with all these varieties, when we're playing a game,

we just know it. There's something essentially unique about the way games structure experience.

When you strip away the genre differences and the technological complexities, all games share four defining traits: a *goal*, *rules*, a *feedback system*, and *voluntary participation*.

The **goal** is the specific outcome that players will work to achieve. It focuses their attention and continually orients their participation throughout the game. The goal provides players with a *sense of purpose*.

The **rules** place limitations on how players can achieve the goal. By removing or limiting the obvious ways of getting to the goal, the rules push players to explore previously uncharted possibility spaces. They *unleash creativity* and *foster strategic thinking*.

The **feedback system** tells players how close they are to achieving the goal. It can take the form of points, levels, a score, or a progress bar. Or, in its most basic form, the feedback system can be as simple as the players' knowledge of an objective outcome: "The game is over when . . ." Real-time feedback serves as a *promise* to the players that the goal is definitely achievable, and it provides *motivation* to keep playing.

Finally, **voluntary participation** requires that everyone who is playing the game knowingly and willingly accepts the goal, the rules, and the feedback. Knowingness *establishes common ground* for multiple people to play together. And the freedom to enter or leave a game at will ensures that intentionally stressful and challenging work is experienced as *safe* and *pleasurable* activity.

This definition may surprise you for what it lacks: interactivity, graphics, narrative, rewards, competition, virtual environments, or the idea of "winning"—all traits we often think of when it comes to games today. True, these are common features of many games, but they are not *defining* features. What defines a game are the goal, the rules, the feedback system, and voluntary participation. Everything else is an effort to reinforce and enhance these four core elements. A compelling story makes the goal more enticing. Complex scoring metrics make the feedback systems more motivating. Achievements and levels multiply the opportunities for experiencing success. Multiplayer and massively multiplayer experiences can make the prolonged play more

unpredictable or more pleasurable. Immersive graphics, sounds, and 3D environments increase our ability to pay sustained attention to the work we're doing in the game. And algorithms that increase the game's difficulty as you play are just ways of redefining the goal and introducing more challenging rules.

Bernard Suits, the late, great philosopher, sums it all up in what I consider the single most convincing and useful definition of a game ever devised:

Playing a game is the voluntary attempt to overcome unnecessary obstacles.¹

That definition, in a nutshell, explains everything that is motivating and rewarding and fun about playing games. And it brings us to our first fix for reality:

FIX #1: UNNECESSARY OBSTACLES

Compared with games, reality is too easy. Games challenge us with voluntary obstacles and help us put our personal strengths to better use.

To see how these four traits are essential to every game, let's put them to a quick test. Can these four criteria effectively describe what's so compelling about games as diverse as, say, golf, Scrabble, and *Tetris*?

Let's take golf to start. As a golfer, you have a clear goal: to get a ball in a series of very small holes, with fewer tries than anyone else. If you weren't playing a game, you'd achieve this goal the most efficient way possible: you'd walk right up to each hole and drop the ball in with your hand. What makes golf a game is that you willingly agree to stand really far away from each hole and swing at the ball with a club. Golf is engaging exactly because you,

along with all the other players, have agreed to make the work more challenging than it has any reasonable right to be.

Add to that challenge a reliable feedback system—you have both the objective measurement of whether or not the ball makes it into the hole, plus the tally of how many strokes you've made—and you have a system that not only allows you to know when and if you've achieved the goal, but also holds out the hope of potentially achieving the goal in increasingly satisfying ways: in fewer strokes, or against more players.

Golf is, in fact, Bernard Suits' favorite, quintessential example of a game—it really is an elegant explanation of exactly how and why we get so thoroughly engaged when we play. But what about a game where the unnecessary obstacles are more subtle?

In Scrabble, your goal is to spell out long and interesting words with lettered tiles. You have a lot of freedom: you can spell any word found in the dictionary. In normal life, we have a name for this kind of activity: it's called typing. Scrabble turns typing into a game by restricting your freedom in several important ways. To start, you have only seven letters to work with at a time. You don't get to choose which keys, or letters, you can use. You also have to base your words on the words that other players have already created. And there's a finite number of times each letter can be used. Without these arbitrary limitations, I think we can all agree that spelling words with lettered tiles wouldn't be much of a game. Freedom to work in the most logical and efficient way possible is the very *opposite* of gameplay. But add a set of obstacles and a feedback system—in this case, points—that shows you exactly how well you're spelling long and complicated words in the face of these obstacles? You get a system of completely unnecessary work that has enthralled more than 150 million people in 121 countries over the past seventy years.

Both golf and Scrabble have a clear win condition, but the ability to win is not a necessary defining trait of games. *Tetris*, often dubbed “the greatest computer game of all time,” is a perfect example of a game you cannot win.²

When you play a traditional 2D game of *Tetris*, your goal is to stack falling puzzle pieces, leaving as few gaps as possible in between them. The pieces

fall faster and faster, and the game simply gets harder and harder. It never ends. Instead, it simply waits for you to fail. If you play *Tetris*, you are *guaranteed* to lose.³

On the face of it, this doesn't sound very fun. What's so compelling about working harder and harder until you lose? But in fact, *Tetris* is one of the most beloved computer games ever created—and the term “addictive” has probably been applied to *Tetris* more than to any single-player game ever designed. What makes *Tetris* so addictive, despite the impossibility of winning, is the intensity of the feedback it provides.

As you successfully lock in *Tetris* puzzle pieces, you get three kinds of feedback: *visual*—you can see row after row of pieces disappearing with a satisfying poof; *quantitative*—a prominently displayed score constantly ticks upward; and *qualitative*—you experience a steady increase in how challenging the game feels.

This variety and intensity of feedback is the most important difference between digital and nondigital games. In computer and video games, the interactive loop is satisfyingly tight. There seems to be no gap between your actions and the game's responses. You can literally see in the animations and count on the scoreboard your impact on the game world. You can also feel how extraordinarily attentive the game system is to your performance. It only gets harder when you're playing well, creating a perfect balance between hard challenge and achievability.

In other words, in a good computer or video game you're always playing on the very edge of your skill level, always on the brink of falling off. When you do fall off, you feel the urge to climb back on. That's because there is virtually nothing as engaging as this state of working at the very limits of your ability—or what both game designers and psychologists call “flow.”⁴ When you are in a state of flow, you want to stay there: both quitting *and* winning are equally unsatisfying outcomes.

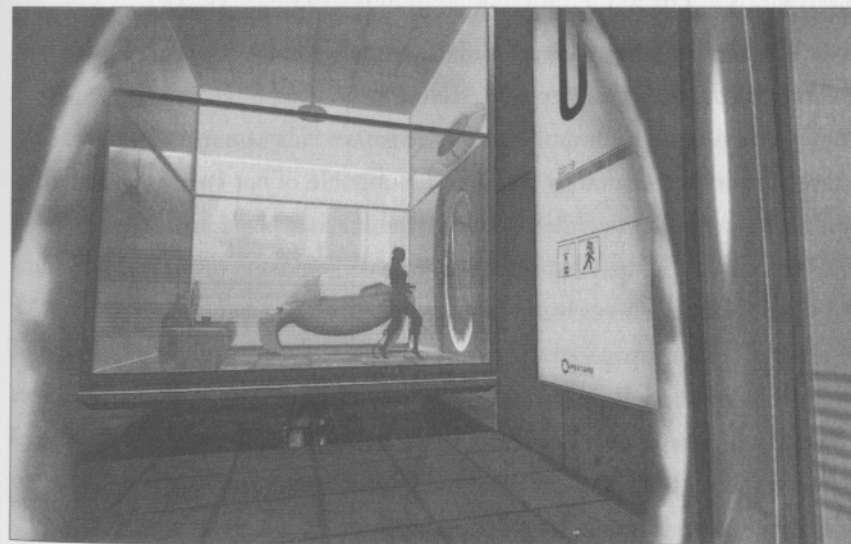
The popularity of an unwinnable game like *Tetris* completely upends the stereotype that gamers are highly competitive people who care more about winning than anything else. Competition and winning are *not* defining traits of games—nor are they defining interests of the people who love to play them.

Many gamers would rather keep playing than win—thereby ending the game. In high-feedback games, the state of being intensely engaged may ultimately be more pleasurable than even the satisfaction of winning.

The philosopher James P. Carse once wrote that there are two kinds of games: *finite games*, which we play to win, and *infinite games*, which we play in order to keep playing as long as possible.⁵ In the world of computer and video games, *Tetris* is an excellent example of an infinite game. We play *Tetris* for the simple purpose of continuing to play a good game.

LET'S TEST OUR proposed definition for a game with one final example, a significantly more complex video game: the single-player action/puzzle game *Portal*.

When *Portal* begins, you find yourself in a small, clinical-looking room with no obvious way out. There is very little in this 3D environment to interact with: a radio, a desk, and what appears to be a sleeping pod. You can shuffle around the tiny room and peer out the glass windows, but that's about



Screenshot from the first room of *Portal*.

(Valve Corporation, 2007)

it. There's nothing obvious to do: no enemies to fight, no treasure to pick up, no falling objects to avoid.

With so few clues for how to proceed, your goal at the start of the game is simply to figure out what your goals are. You might reasonably guess that your first goal is to get out of the sealed room, but you can't really be sure. It would seem that the main obstacle you face is that you have no idea what you're supposed to be doing. You're going to have to learn how to advance in this world on your own.

Well, not completely on your own. If you poke around the room enough, you might think to pick up a clipboard lying on the desk. This movement triggers an artificial intelligence system to wake up and start speaking to you. The AI informs you that you are about to undertake a series of laboratory tests. The AI does not tell you what you are being tested on. Again, it's up to you, the player, to figure it out.

What you eventually discover as you continue to play is that *Portal* is a game about escaping from rooms that operate according to rules you are unaware of. You learn that each room is a puzzle, increasingly booby-trapped, and the game requires you to understand more and more complex physics in order to get out. If you don't teach yourself the physics of each new room—that is, if you don't learn the rules of the game—you'll be stuck there forever, listening to the AI system repeat herself.

Many, if not most, computer and video games today are structured this way. Players begin each game by tackling the obstacle of *not knowing what to do* and *not knowing how to play*. This kind of ambiguous play is markedly different from historical, predigital games. Traditionally, we have needed instructions in order to play a game. But now we're often invited to learn as we go. We explore the game space, and the computer code effectively constrains and guides us. We learn how to play by carefully observing what the game allows us to do and how it responds to our input. As a result, most gamers never read game manuals. In fact, it's a truism in the game industry that a well-designed game should be playable immediately, with no instruction whatsoever.

A game like *Portal* turns our definition of a game on its head, but doesn't

destroy it. The four core elements of goals, rules, feedback, and voluntary participation remain the same—they just play out in a different order. It used to be that we were spoon-fed the goal and the rules, and we would then seek feedback on our progress. But increasingly, the feedback systems are what we learn first. They guide us toward the goal and help us decode the rules. And that's as powerful a motivation to play as any: discovering exactly what is possible in this brand-new virtual world.

I THINK it's fair to say that Suits' definition, and going forward *our* definition, holds up remarkably well against these diverse examples. Any well-designed game—digital or not—is an invitation to tackle an unnecessary obstacle.

When we understand games in this light, the dark metaphors we use for talking about games are revealed to be the irrational fears they really are. Gamers don't want to game the system. Gamers want to play the game. They want to explore and learn and improve. They're volunteering for unnecessary hard work—and they genuinely care about the outcome of their effort.

If the goal is truly compelling, and if the feedback is motivating enough, we will keep wrestling with the game's limitations—creatively, sincerely, and enthusiastically—for a very long time. We will play until we utterly exhaust our own abilities, or until we exhaust the challenge. And we will take the game seriously because there is nothing trivial about playing a good game. *The game matters.*

This is what it means to act like a gamer, or to be a truly *gameful* person. This is who we become when we play a good game.

But this definition leads us to a perplexing question. Why *on earth* are so many people volunteering to tackle such completely unnecessary obstacles? Why are we collectively spending 3 billion hours a week working at the very limits of our ability, for no obvious external reward? In other words: *Why do unnecessary obstacles make us happy?*

When it comes understanding how games really work, the answer to this question is as crucial as the four defining traits.

How Games Provoke Positive Emotion

Games make us happy because they are hard work that we choose for ourselves, and it turns out that almost nothing makes us happier than good, hard work.

We don't normally think of games as hard work. After all, we *play* games, and we've been taught to think of play as the very opposite of work. But nothing could be further from the truth. In fact, as Brian Sutton-Smith, a leading psychologist of play, once said, "The opposite of play isn't work. It's depression."⁶

When we're depressed, according to the clinical definition, we suffer from two things: a *pessimistic sense of inadequacy* and a *despondent lack of activity*. If we were to reverse these two traits, we'd get something like this: an *optimistic sense of our own capabilities* and an *invigorating rush of activity*. There's no clinical psychological term that describes this positive condition. But it's a perfect description of the emotional state of gameplay. A game is an opportunity to focus our energy, with relentless optimism, at something we're good at (or getting better at) and enjoy. In other words, *gameplay is the direct emotional opposite of depression*.

When we're playing a good game—when we're tackling unnecessary obstacles—we are actively moving ourselves toward the positive end of the emotional spectrum. We are intensely engaged, and this puts us in precisely the right frame of mind and physical condition to generate all kinds of positive emotions and experiences. All of the neurological and physiological systems that underlie happiness—our attention systems, our reward center, our motivation systems, our emotion and memory centers—are fully activated by gameplay.

This extreme emotional activation is the primary reason why today's most successful computer and video games are so addictive and mood-boosting. When we're in a concentrated state of optimistic engagement, it suddenly becomes biologically more possible for us to think positive thoughts, to make social connections, and to build personal strengths. We are actively conditioning our minds and bodies to be happier.

If only hard work in the real world had the same effect. In our real lives,

hard work is too often something we do because we *have* to do it—to make a living, to get ahead, to meet someone else's expectations, or simply because someone else gave us a job to do. We resent that kind of work. It stresses us out. It takes time away from our friends and family. It comes with too much criticism. We're afraid of failing. We often don't get to see the direct impact of our efforts, so we rarely feel satisfied.

Or, worse, our real-world work isn't hard enough. We're bored out of our minds. We feel completely underutilized. We feel unappreciated. We are wasting our lives.

When we don't choose hard work for ourselves, it's usually not the right work, at the right time, for the right person. It's not perfectly customized for our strengths, we're not in control of the work flow, we don't have a clear picture of what we're contributing to, and we never see how it all pays off in the end. Hard work that someone else requires us to do just doesn't activate our happiness systems in the same way. It all too often doesn't absorb us, doesn't make us optimistic, and doesn't invigorate us.

What a boost to global net happiness it would be if we could positively activate the minds and bodies of hundreds of millions of people by offering them better hard work. We could offer them challenging, customizable missions and tasks, to do alone or with friends and family, whenever and wherever. We could provide them with vivid, real-time reports of the progress they're making and a clear view of the impact they're having on the world around them.

That's *exactly* what the game industry is doing today. It's fulfilling our need for better hard work—and helping us choose for ourselves the right work at the right time. So you can forget the old aphorism "All work and no play makes Jack a dull boy." All good gameplay is hard work. It's hard work that we enjoy and choose for ourselves. And when we do hard work that we care about, we are priming our minds for happiness.

The right hard work takes different forms at different times for different people. To meet these individual needs, games have been offering us increasingly diverse kinds of work for decades now.

There's **high-stakes work**, which is what many people think of first when

it comes to video games. It's fast and action oriented, and it thrills us with the possibility not only of success but also of spectacular failure. Whether we're driving hairpin turns at top speeds in a racing video game like the *Gran Turismo* series or battling zombies in a first-person shooter game like *Left 4 Dead*, it's the risk of crashing, burning, or having our brains sucked out that makes us feel more alive.

But there's also **busywork**, which is completely predictable and monotonous. Busywork generally gets a bad rap in our real lives, but when we choose it for ourselves, it actually helps us feel quite contented and productive. When we're swapping multicolored jewels in a casual game like *Bejeweled* or harvesting virtual crops in a social game like FarmVille, we're happy just to keep our hands and mind occupied with focused activity that produces a clear result.

There's **mental work**, which revs up our cognitive faculties. It can be rapid-fire and condensed, like the thirty-second math problems in Nintendo's *Brain Age* games. Or it can be drawn-out and complex, like the simulated ten-thousand-year conquest campaigns in the real-time strategy game *Age of Empires*. Either way, we feel a rush of accomplishment when we put our brains to good use.

And then there's **physical work**, which makes our hearts beat faster, our lungs pump harder, our glands sweat like crazy. If the work is hard enough, we'll flood our brains with endorphins, the feel-good chemical. But more importantly, whether we're throwing punches in *Wii Boxing* or jumping around to *Dance Dance Revolution*, we just enjoy the process of getting ourselves completely worn out.

There's discovery work, which is all about the pleasure of actively investigating unfamiliar objects and spaces. Discovery work helps us feel confident, powerful, and motivated. When we're exploring mysterious 3D environments, like a vast city hidden in the sea in the role-playing shooter game *BioShock*, or when we're interacting with strange characters, like the fashionable undead teenagers who populate Tokyo in the handheld battle game *The World Ends with You*, we relish the chance to be curious about anything and everything.

Increasingly in computer and video games today there's **teamwork**, which emphasizes collaboration, cooperation, and contributions to a larger group. When we carve out special duties for ourselves in a complex mission like the

twenty-five-player team raids in *World of Warcraft*, or when we're defending our friends' lives in a four-player cooperative game of the comic adventure *Castle Crashers*, we take great satisfaction in knowing we have a unique and important role to play in a much bigger effort.

Finally, there's **creative work**. When we do creative work, we get to make meaningful decisions and feel proud of something we've made. Creative work can take the form of designing our homes and families in the *Sims* games, or uploading video karaoke performances of ourselves to the *SingStar* network, or building and managing an online franchise in the *Madden NFL* games. For every creative effort we make, we feel more capable than when we started.

HIGH-STAKES WORK, busywork, mental work, physical work, discovery work, teamwork, and creative work—with all this hard work going on in our favorite games, I'm reminded of something the playwright Noël Coward once said: "Work is more fun than fun."

Sure, this sounds mildly absurd. Work more fun than fun? But when it comes to games, this is measurably and demonstrably true, thanks to a psychology research method known as "experience sampling."

Psychologists use the experience sampling method, or ESM, to find out how we really feel during different parts of our day. Subjects are interrupted at random intervals with a pager or by text message and asked to report two pieces of information: what they're doing and how they feel.⁷ One of the most common findings of ESM research is that what we think is "fun" is actually mildly depressing.

Virtually every activity that we would describe as a "relaxing" kind of fun—watching television, eating chocolate, window-shopping, or just chilling out—doesn't make us feel better. In fact, we consistently report feeling worse afterward than when we started "having fun": less motivated, less confident, and less engaged overall.⁸ But how can so many of us be so wrong about what's fun? Shouldn't we have a better intuitive sense of what actually makes us feel better?

We certainly have a strong intuitive sense of what makes us feel bad, and

negative stress and anxiety are usually at the top of the list. ESM researchers believe that when we consciously seek out relaxing fun, we're usually trying to reverse these negative feelings. When we seek out passive entertainment and low-engagement activities, we're using them as a counterbalance to how stimulated and overwhelmed we feel.

But by trying to have easy fun, we actually often wind up moving ourselves too far in the opposite direction. We go from stress and anxiety straight to boredom and depression. We'd be much better off avoiding easy fun and seeking out *hard fun*, or hard work that we enjoy, instead.

Hard fun is what happens when we experience positive stress, or *eustress* (a combination of the Greek *eu*, for "well-being," and *stress*). From a physiological and a neurological standpoint, eustress is virtually identical to negative stress: we produce adrenaline, our reward circuitry is activated, and blood flow increases to the attention control centers of the brain. What's fundamentally different is our frame of mind.

When we're afraid of failure or danger, or when the pressure is coming from an external source, extreme neurochemical activation doesn't make us happy. It makes us angry and combative, or it makes us want to escape and shut down emotionally. It can also trigger avoidance behaviors, like eating, smoking, or taking drugs.⁹

But during *eustress*, we aren't experiencing fear or pessimism. We've generated the stressful situation on purpose, so we're confident and optimistic. When we choose our hard work, we enjoy the stimulation and activation. It makes us want to dive in, join together, and get things done. And this optimistic invigoration is way more mood-boosting than relaxing. As long as we feel capable of meeting the challenge, we report being highly motivated, extremely interested, and positively engaged by stressful situations. And these are the key emotional states that correspond with overall well-being and life satisfaction.

Hard fun leaves us feeling measurably better than when we started. So it's no surprise, then, that one of the activities for which ESM subjects report the highest levels of interest and positive moods both during *and* afterward is when they're playing games—including sports, card games, board games, and computer and video games.¹⁰ The research proves what gamers already know:

within the limits of our own endurance, we would rather work hard than be entertained. Perhaps that's why gamers spend less time watching television than anyone else on the planet.¹¹

As Harvard professor and happiness expert Tal Ben-Shahar puts it, "We're much happier *enlivening* time rather than killing time."¹²

THERE'S ONE MORE important emotional benefit to hard fun: it's called "fiero," and it's possibly the most primal emotional rush we can experience.

Fiero is the Italian word for "pride," and it's been adopted by game designers to describe an emotional high we don't have a good word for in English.¹³ *Fiero* is what we feel after we triumph over adversity. You know it when you feel it—and when you see it. That's because we almost all express fiero in exactly the same way: we throw our arms over our head and yell.

The fact that virtually all humans physically express fiero in the same way is a sure sign that it's related to some of our most primal emotions. Our brains and bodies must have evolved to experience fiero early on the human timeline—and, in fact, neuroscientists consider it part of our "caveman wiring." *Fiero*, according to researchers at the Center for Interdisciplinary Brain Sciences Research at Stanford, is the emotion that first created a desire to leave the cave and conquer the world.¹⁴ It's a craving for challenges that we can overcome, battles we can win, and dangers we can vanquish.

Scientists have recently documented that fiero is one of the most powerful neurochemical highs we can experience. It involves three different structures of the reward circuitry of the brain, including the mesocorticolimbic center, which is most typically associated with reward and addiction. *Fiero* is a rush unlike any other rush, and the more challenging the obstacle we overcome, the more intense the fiero.

A GOOD GAME is a unique way of structuring experience and provoking positive emotion. It is an extremely powerful tool for inspiring participation and motivating hard work. And when this tool is deployed on top of a network,

it can inspire and motivate tens, hundreds, thousands, or millions of people at a time.

Anything else you think you know about games, forget it for now. All the good that comes out of games—every single way that games can make us happier in our everyday lives and help us change the world—stems from their ability to organize us around a voluntary obstacle.

Understanding that this is how games really work can help us stop worrying about how people might game our systems, and inspire us to start giving them real, well-designed games to play instead. If we actively surround ourselves with people playing the same game that we are, then we can stop being so wary of “players” playing their own game. When we know what it really means to play a good game, we can stop reminding each other: *This isn't a game*. We can start actively encouraging people instead: *This could be a game*.

CHAPTER TWO

The Rise of the Happiness Engineers

I'm not the first person to notice that reality is broken compared with games, especially when it comes to giving us good, hard work. In fact, the science of happiness was first born thirty-five years ago, when an American psychologist by the name of Mihály Csíkszentmihályi observed the very same thing. In 1975, Csíkszentmihályi published a groundbreaking scientific study called *Beyond Boredom and Anxiety*. The focus of the study was a specific kind of happiness that Csíkszentmihályi named *flow*: “the satisfying, exhilarating feeling of creative accomplishment and heightened functioning.”¹ He spent seven years researching this kind of intense, joyous engagement: when and where do we experience it most, and how can we create more of it?

Csíkszentmihályi (pronounced *cheek-SENT-me-high*) found a depressing lack of flow in everyday life, but an overwhelming abundance of it in games and gamelike activities. His favorite examples of flow-inducing activities were chess, basketball, rock climbing, and partner dancing: all challenging endeavors with a clear goal, well-established rules for action, and the potential for in-